

VERMONT ENVIRONMENTAL BOARD
10 V.S.A. Chapter 151

RE: Killington, Ltd. by Findings of Fact and
Allan R. Keyes, Esq. Conclusions of Law
Ryan Smith & Carbine, Ltd. and Order
P.O. Box 310 Land Use Permit #1R0584-EB-1 (Part II)
Rutland, VT 05701 Land Use Permit #1R0593-1-EB (Part I)
and
Martin Molot, Vice President
International Paper Realty Corp.
One Maynard Drive
Park Ridge, NJ 07656

Norman R. Smith, Inc. and
Killington, Ltd. by
Frank P. Urso, Esq.
Killington Ltd.
Killington, VT 05751

This decision pertains to an appeal filed with the Environmental Board on June 8, 1987 by Norman R. Smith, Inc. and Killington, Ltd. from the decision of the District #1 Environmental Commission dated May 18, 1987 denying approval to harvest timber above the elevation of 2,500 feet on land owned by Killington, Ltd. (Application #1R0593-1-EB), and to an appeal filed on August 13, 1987 by Killington, Ltd. and International Paper Realty Corporation (IPRC) from the decision of the District #1 Environmental Commission denying approval for Killington to construct and operate a four-acre snowmaking pond on land owned by IPRC (Application #1R0584-EB-1). Both projects are located in an area known as Parker's Gore East in Mendon, Vermont adjacent to the Killington ski area.

After Killington, Ltd. and IPRC filed their appeal from the District Commission's denial of a permit for the snow-making pond, various parties requested that the two appeals be consolidated. The Board determined to hold a joint hearing on the issue of whether necessary wildlife habitat exists but to hold separate hearings on the other issues.

A prehearing conference was convened on Application #1R0593-1-EB on July 15, 1987 by Acting Chair Jan S. Eastman and a Prehearing Conference Report was issued on August 18. The Board took a site visit to Parker's Gore East on October 16, 1987. After additional prehearing conferences were held on October 16 and December 30, 1987, a public hearing was convened before the Environmental Board on February 23, 1988 and a description of the project was presented to the Board. The hearing was subsequently reconvened on June 7, October 19, and December 13 and 14, 1988 on the issues of the definition and existence of necessary wildlife habitat and

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Whether the timber harvesting will destroy or significantly imperil necessary wildlife habitat. On October 20, 1988, the Board made a second site visit to Parker's Gore East.

The following parties participated in the hearings on Application #1R0593-1-EB:

Norman R. Smith, Inc. and Killington, Ltd. (Applicants)
by John Zawistoski, Esq., Allan R. Keyes, Esq. and
Frank P. Urso, Esq.
State of Vermont, Agency of Natural Resources (the
State) by Mark A. Sinclair, Esq.
Town of Shrewsbury and Shrewsbury Planning Commission
(Shrewsbury) by Robert E. Woolmington, Esq.

A prehearing conference was convened on Application #1R0584-EB-1 on October 16, 1987 by Acting Chair Jan S. Eastman. Several preliminary legal issues were raised and a schedule established for filing briefs on these issues. In a Prehearing Conference Report and Order issued on October 18, Acting Chair Eastman granted party status pursuant to Rule 14(B) to the Shrewsbury Land Trust for Criteria 2, 4, and 8(A); to the Vermont Natural Resources Council for Criteria 2, 4, and 8(A); and to the Connecticut River Watershed Council for Criterion 2. The Acting Chair also determined that Two Rivers-Ottawaquechee Regional Planning Commission, the Town of Shrewsbury and Shrewsbury Planning Commission, and the Town of Bridgewater and Bridgewater Planning Commission are statutory parties. After receiving legal memoranda from various parties, the Board held a hearing and heard oral argument from the parties on November 17, 1987. On December 16, the Board issued a Memorandum of Decision resolving the preliminary issues. A second prehearing conference was held on December 30.

On February 23 and 24, 1988, the Board convened a public hearing on whether the snowmaking pond is part of a plan to develop Parker's Gore East and whether the application should therefore address the impacts of the larger development. The following parties participated in the hearing:

Killington, Ltd. by John Zawistoski, Esq. and Frank
Urso, Esq.
Town of Shrewsbury and Shrewsbury Planning Commission
(Shrewsbury) by Robert E. Woolmington, Esq.
Agency of Natural Resources (ANR) by Frederic Emigh,
Esq./1/

/1/ Mark A. Sinclair, Esq. substituted his appearance for Frederic Emigh, Esq. subsequent to this hearing and thereafter represented the State in these proceedings.

Vermont Natural Resources Council (VNRC) by Robert E.
Woolmington, Esq.
Shrewsbury Land Trust (Land Trust) by William Roper,
Esq. and Nancy Bell

On April 19, 1988, the Board issued its decision in which it determined that the snowmaking pond is a viable project on its own and therefore consideration of Application #1R0584-EB-1 is limited to a review of the impacts from the construction and operation of the pond and related facilities.

The hearings were reconvened on June 7 and 8, October 19 and 20, and December 13 and 14, 1988 on the issues of the definition and existence of necessary wildlife habitat and whether construction and operation of the pond will destroy or significantly imperil necessary wildlife habitat.

The hearings on both applications were recessed pending filing of proposed findings and legal memoranda by the parties. On February 2, 1989, the State and Shrewsbury submitted proposed findings of fact and conclusions of law and legal memoranda and on February 3 the Applicants submitted proposed findings and a motion to allow oral summation. On March 8, 1989, the Board reconvened the hearings on both applications for the purpose of hearing oral summation from the parties.

On March 15 Shrewsbury filed a memorandum of law on the admissibility of expert testimony and on March 20 the State filed a memorandum of law on the admissibility of its expert witnesses. The Board conducted deliberative sessions on March 22 and May 2, 1989. On May 2, following a review of the proposed decision, the evidence presented in the cases and the written objections, legal memoranda and oral arguments of the parties, the Board declared the record complete and adjourned the hearings. These matters are now ready for decision. The following findings of fact and conclusions of law are based exclusively upon the records developed at the hearings and the observations at the site visits. To the extent the Board agreed with and found necessary any findings proposed by the parties, they have been incorporated herein; otherwise, said requests to find are hereby denied.

I. ISSUES IN THE APPEAL

A. Preliminary Issues

Killington has raised the following preliminary issues:

1. Whether the Board should exclude the testimony of Kenneth Elowe and Jerry Jenkins on the subject of wetlands. Killington argues that whether wetlands constitute necessary

bear habitat was not an issue raised by any party before the District Commission or before the Board in this appeal and therefore any testimony on the subject should be excluded.

2. Whether the testimony of certain witnesses should be disregarded because it constitutes legal conclusions which are inadmissible under Reiss v. A.-O. Smith Corp., No. 87-012, Slip Op. (Nov. 10, 1988).

3. Whether the testimony of the State's witnesses should be excluded because the State changed its position regarding the impact of the pond on necessary wildlife habitat.

These issues are resolved in the Conclusions of Law herein.

B. Substantive Issues

The District Commission denied the application for permission to harvest timber because it found that the logging would significantly imperil necessary black bear habitat, pursuant to 10 V.S.A. § 6086(a)(8)(A) (Criterion 8(A)). The District Commission also determined that if a permit were issued it should contain certain conditions to protect the scenic beauty of the logging site and the Appalachian Trail, pursuant to Criterion 8. The Applicants object to both the District Commission's findings regarding the existence of necessary wildlife habitat and its proposed conditions regarding the protection of scenic beauty.

The District Commission denied the application for a snowmaking pond based upon its conclusions that the pond is part of an expansion of the Killington ski area into Parker's Gore East, and that construction and operation of the pond would destroy or significantly imperil the necessary habitat of black bear whether or not it constitutes infrastructure for a larger development. Killington appealed the District Commission's granting of party status to various parties and appealed the District Commission's findings that the proposed pond is part of a larger development, that Killington's need for snowmaking water is an issue for consideration under Criterion 2, that the area contains necessary wildlife habitat, and that the project will destroy or significantly imperil necessary wildlife habitat under Criterion 8(A). Killington also objects to the imposition of conditions on erosion control under Criterion 4.

The Board and the parties agreed that the Board would first determine the scope of the project involving the snowmaking pond, and then would address the issue of whether

the areas of the proposed logging or the proposed pond constitute "necessary wildlife habitat" and, if they do, whether either the tree harvesting or the construction and operation of the pond will destroy or significantly imperil such habitat. If the Board determines that the logging or the construction and operation of the pond will destroy or significantly imperil necessary bear habitat, further hearings will be held to address the three subcriteria of Criterion 8(A) and any remaining substantive issues, as outlined above. On April 19, 1988, the Board issued its decision that the snowmaking pond will be considered a viable project on its own regardless of future plans to develop Parker's Gore East. This decision, therefore, involves only the threshold issue of the existence of necessary wildlife habitat in each area and each project's impact on such habitat.

The following substantive issues must be resolved by the Board:

1. The proper meaning of "necessary wildlife habitat."
2. Whether the 700 acres that constitute Parker's Gore East contain necessary wildlife habitat. The specific areas within Parker's Gore East include:
 - a. The area that contains the proposed snowmaking pond.
 - b. Area 1 as designated in the cutting plans that contain the northern hardwood stands.
 - c. Areas 2 and 3 as designated in the cutting plans that contain softwood stands.
3. Whether the construction and/or operation of the pond will destroy or significantly imperil necessary wildlife habitat.
4. Whether the timber harvesting will destroy or significantly imperil necessary wildlife habitat.

II. PARTY STATUS

The Town of Shrewsbury and Shrewsbury Planning Commission sought party status in the #1R0593-1-EB proceeding pursuant to 10 V.S.A. § 6084 as adjacent municipalities. Over the objections of the Applicants, the Board granted party status to both the Town and the Planning Commission as

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statutory parties, consistent with its decision in Re:
Killington, Ltd., Memorandum of Decision: Party **Status**,
Land Use Permits #1R0525-EB and #1R0530-EB (March 19, 1986).

In the #1R0584-EB-1 proceedings, over the objections of Killington, the Board granted party status pursuant to Rule 14(B) to the Land Trust for Criteria 2, 4, and 8(A), the VNRC for Criteria 2, 4, and 8(A), and the Connecticut River Watershed Council for Criterion 2, and determined that the Two Rivers-Ottawaquechee Regional Planning Commission, the Town of Shrewsbury, the Shrewsbury Planning Commission, the Town of Bridgewater, and the Bridgewater Planning Commission are statutory parties as adjacent municipalities. See Memorandum of Decision dated December 16, 1987 and Prehearing Conference Report and Order dated October 28, 1987.

III. FINDINGS OF FACT

A. Description of the Logging Application

1. The Applicant Norman R. Smith has proposed to selectively harvest timber from approximately 700 acres of land owned by Killington, Ltd. between the elevations of 2,500 feet and 3,900 feet in an area of Mendon known as Parker's Gore East. The area to be logged is bounded on the north by the Mendon/Sherburne town line, on the east by lands owned by IPRC, on the south by lands owned by the State of Vermont in the Town of Shrewsbury, and on the west by the Appalachian Trail.
2. Parker's Gore East is comprised of approximately 1,500 acres, most of which are covered with forests. The elevations between approximately 2,100 feet to 2,800 feet contain predominantly beech, birch, and maple trees. The elevations of 2,800 feet to 3,100 feet are covered with birch and spruce-fir species. The higher elevations up to approximately 4,100 feet are comprised almost entirely of pure spruce-fir stands. The North and South Forks of Madden Brook traverse the easternmost portions of the area.
3. Mr. Smith is a professional forester. His logging proposal divides Parker's Gore East into three areas. Area I consists of approximately 300 acres, containing primarily northern hardwoods (maple, beech, and yellow birch). **Merchantable trees larger than 15 inches in**

diameter will be selectively harvested. An average of four to five beech trees larger than 15 inches in diameter per acre will be retained. The residual stand will have an average basal area (total surface area of stumps if all trees were sliced off at 4½ feet above the ground) of 60 square feet per acre, a mean stand diameter (average diameter of all trees in a one-acre stand) of 10 inches, and an average of 150 stems (trees) per acre.

4. Area 2, consisting of approximately 200 acres, contains primarily birch and spruce-fir trees. Area 3, comprised of 200 acres in the upper elevations, contains primarily spruce-fir stands. These areas will also be selectively harvested. No cutting will take place within 50 feet of the 700-foot wide Appalachian Trail corridor.
5. Several **two-** to three-acre clearcuts will be made in Areas 1 and 2. The number, size, and locations of any clearcuts would be decided cooperatively by Mr. Smith, Killington, Ltd., and the Vermont Department of Fish and Wildlife.
6. The specific trees that will be cut will be entirely within Mr. Smith's discretion. Mr. Smith has not agreed to mark the beech trees he intends to harvest prior to cutting nor has he agreed to retain those trees that indicate current or historic use by bears.
7. Mr. Smith intends to construct a series of "arch" roads, where the skidders operate, and "skid" roads to gain access to the timber. He will use existing ski trails and abandoned logging roads whenever feasible, but has not determined the exact locations of the roads to be constructed and intends to lay them out at his discretion as the job proceeds. The arch roads will be 15 to 20 feet wide and will be constructed by clearing the forest and leveling the ground with a bulldozer.
8. The equipment that will be used will consist of two skidders and two crawler tractors. After being cut, the trees will be dragged by cables through the forest to a tractor. The tractor will drag bunches of trees to the skid roads, and from there to the larger arch roads. The cables and heavy equipment can jeopardize **the existing trees by damaging their root systems and scraping bark off their trunks.**

9. The logging roads will not be open to the public during logging operations. After the logging is completed, a physical barrier will permanently close the access point at the Sunrise Condominium to vehicular traffic.
10. The logging operation will be conducted between June and December, or until there is permanent snow cover, over the course of two years.

B. Description of the Pond Application

11. Killington, Ltd. proposes to construct a pond to provide a water source and storage reservoir for the snowmaking system at the Killington ski area on lands owned by IPRC in Parker's Gore East which IPRC leases to Killington.
12. The proposed pond, known as Madden Pond, will have a surface area of 4.18 acres but will actually occupy approximately 6.88 acres. It will measure 640 feet by 460 feet, and will have a maximum depth of 19 feet.
13. The pond will be created by diverting the waters of Madden Brook. A dam will be constructed from compacted earth and will involve the excavation of approximately 25,000 cubic yards of material.
14. The related pond improvements will include construction of an underground pipeline to divert the North Fork of Madden Brook to the pond, an access road, an overhead power line extending from the existing line at the top of the Northeast Passage chair lift, a pump house, and a pipe line to connect the pond with the existing Killington ski area snowmaking system.
15. The pumphouse will be built near the pond to house two 400-horsepower electrical pumps. The pipes will be buried along the edge of the access road.
16. The site of the proposed pond contains a wetland of approximately 1.3 acres. It is 80 to 90 percent open, with a continuous margin of trees around the edges and scattered trees on hummocks throughout. In November 1987, the wetland had water at or above the ground surface over about 95 percent of the area. The depth ranged from one to six inches, with several large and deeper pools.

c. The Subunit

17. The bear habitat in Parker's Gore East is part of a larger black bear "subunit," which represents a habitat unit within a larger expanse of bear habitat. The subunit is an area of approximately 70 square miles whose boundaries are defined by state highways. The northern boundary is Route 4, the eastern boundary is Route 100, the southern boundary is Route 103, and the western boundary is Route 7. The number of bears that live in the subunit is estimated at 20 to 30. Other bears likely use the habitat in the subunit.
18. The northern half of the subunit is remote forest, topographically diverse, essentially roadless, and relatively free from development and human habitation. The southern portions of the subunit contain lower quality habitat due to fragmentation by development and roads.
19. The "roadless remote area," a large contiguous block of remote forested habitat of approximately 18,500 acres, is the prime bear habitat in the subunit as delineated in blue on Board Exhibit #83. The absence of roads in the area indicates an absence of human habitation.
20. Bear habitat is often found in the higher mountainous areas, because of the lower level of human disturbance in such locations. In Vermont, the best bear habitat is found along the spine of the Green Mountains and in the Northeast Kingdom. These areas are among the most undeveloped in the state.
21. Parker's Gore East lies in the optimal bear range along the spine of the Green Mountains. Except for the Appalachian Trail, three ski trails at the north of Parker's Gore East, and two cross-country ski trails near the site of the proposed snowmaking pond, Parker's Gore East is largely free of human development and human disturbance. Bears anywhere within this area have virtually uninterrupted access to any habitat components within the area.
22. Parker's Gore East's location in the center of the Green Mountain spine, between other bear habitat to the south and north, makes it an important link between **those areas.**
23. The annual home range for female black bears is from four to 15 square miles, and 25 to 50 square miles for male bears.

24. The preservation of the link through Parker's Gore East between extensive holdings of undeveloped federal and state lands located to the north and south of the subunit is important for bears throughout the region because it provides cover and travel corridors.
25. Bears need extensive tracts of remote habitat. They generally avoid major road corridors and are reluctant to cross roads. Fragmentation of habitat by roads, residential developments, and other human encroachments is a significant threat to the black bear species. Fragmentation may reduce habitat size to the point that it is not sufficiently large or remote to support bears, preventing them from reaching necessary components of their habitat. In addition, it separates segments of the bear population, endangering their ability to sustain themselves because of inbreeding brought about by isolation from other segments of the population.
26. Additional human intrusion or development of Parker's Gore East could reduce the size of the subunit so that it becomes useless or significantly less valuable as bear habitat.
27. Except for hiking and ski trails, Parker's Gore East is completely undeveloped and free from human disturbance, and provides the remote, rugged, forested areas that are essential for bears. Development that encroaches on their habitat forces the bears into other range, if it is available. As human intrusion increases, bear mortality increases due to direct killing by humans through hunting and vehicles and by the bears' being forced to use inferior habitat.
28. The thick spruce-fir cover found in the higher elevations provides secure cover to escape to and to travel through. Cover is very important to bears because they are naturally reclusive and wary and tend to avoid humans and human activity. Cover is especially important when it is located in close proximity to a source of food.

D. Beech Trees

29. According to a forest inventory conducted by the Vermont **Department of Fish and Wildlife in 1986 and 1987**, the beech component in Area 1 has the following characteristics:

- a) Beech trees comprise almost 30 percent of the total basal area of the stand.
 - b) The stand contains an average of 51 beech stems per acre.
 - c) The stand contains an average of approximately seven beech stems per acre that are 16 inches and larger in diameter.
 - d) 67 percent of the beech trees 12 inches and larger in diameter are scarred by bears.
 - e) 85 percent of the beech trees 16 inches and larger in diameter are scarred by bears.
30. A typical northern hardwood stand contains approximately 10 percent beech trees. Small and medium-sized beech trees are common in the Green Mountains, but beeches larger than 14 inches in diameter are not common, and stands with four or five large beech trees per acre are rare.
31. Beech trees first produce nuts when they are approximately 50 years old, at approximately 10 to 12 inches in diameter. They continue to be productive until they are up to 200 years old. The release of younger trees through selective cutting of larger trees will not compensate for the loss of the larger, nut-producing trees for several decades because it will take that long for the trees to become significant producers of beechnuts. The remaining trees would then be exposed to increased stress from wind and storm damage.
32. Larger diameter beech trees are the most reliable and greatest volume producers of beechnuts. A 16-inch diameter beech tree produces a substantially greater number of nuts than a 10-inch diameter beech tree.
33. Not all beech trees produce nuts, and beech trees do not produce nuts every year. Because of the variability of nut production among beech trees, a high concentration of large beech trees increases the chances of some production of nuts in any given year within a particular stand. Feeding at a concentrated stand of **nut-**producing beech is more efficient than searching for the occasional beech tree in the woods that would produce a few nuts.

34. An exceptional stand of beech trees is located in Parker's Gore East approximately one-half mile from the proposed snowmaking pond between the elevations of 2,200 and 2,800 feet.
35. Current and historic use of the beech trees is indicated by scarring on the bark from the bear claws and the existence of bear "nests" in the trees. Bear nests are formed when a bear climbs a beech tree and pulls and rips branches to reach the beechnuts, leaving a tangle of branches in the trees.
36. Other signs of bear in the area include scat, tracks, flattened areas of vegetation, and disturbance on the forest floor where bears have rooted around for nuts.
37. Readily identifiable scars are created on beech trees by bears' claws when bears climb the trees to feed on beech nuts. The scars remain for many decades. Old scars appear as welts on the bark. New scars are apparent from the clear claw marks revealing the orange color of the layer under the bark.
38. On one field trip in October 1988, the State's wildlife biologist observed, between the elevations of 2,500 and 2,700 feet and between the North and South Forks of Madden Brook, 50 to 75 freshly scarred beech trees, several bear nests, bear scats on the ground, and disturbed leaves on the forest floor where bears had pawed for nuts.
39. At a site visit the Board made to the same area on October 20, 1988, the Board observed 55 beech trees with recent scarring, 10 bear nests, nine piles of scat, and numerous areas of forest-floor disturbance.
40. There is also evidence of abundant recent scarring on beech trees below the **2,500-foot** elevation.
41. The stand of beech trees in Area 1 currently produces and has historically produced a large quantity of beechnuts. It is one of the best producing and most heavily used beech stands in the State of Vermont.
42. Parker's Gore East contains herb species which are indicative of fertile soils high in lime content. These soils are rare in the southern and central Green Mountain range and may be a contributing factor in the unusual concentration of large beech trees and high **beechnut** productivity in Parker's Gore East.

43. Black bears are primarily vegetarians. In Vermont, their food sources vary through the seasons. In early spring, they feed on grasses and other emergent vegetation. Wetlands are a main source of early vegetation in Vermont and are an important food source. When bears emerge from their dens in the spring they are weak, and they depend upon the early growth found in wetlands to meet their nutritional needs.
44. In summer, black bears feed primarily on "soft mast" which is comprised of berries, cherries, and apples. Lacking oil, soft mast does not have sufficient calories to contribute significantly to building up fat reserves.
45. During the late summer and fall, bears feed on "hard mast" which is comprised of nut crops, primarily beechnuts in Vermont. Beechnuts are the most important fall food for bears in Vermont. Black bears depend upon beechnuts to provide the carbohydrates and oils that build up the fat reserves necessary for hibernation and breeding.
46. From approximately mid-November to mid-April, bears live entirely off their fat reserves. Fall is the most critical time of year for bears because they must obtain sufficient high energy mast supplies to survive the winter. In the fall, bears sometimes engage in a "feeding frenzy" in order to build up their fat supplies in preparation for the coming winter. Without adequate fall mast supplies, bears fail to build up the necessary fat reserves. In years of bad **beechnut** crops, adult bears may go into their dens early without adequate fat to assure survival through the winter. Female bears that do not reach adequate stored fat levels do not produce cubs or produce fewer or weaker cubs. Inadequate fat reserves also result in mortality when bears or their offspring cannot survive the winter months. The availability of hard mast is decisive to the survival of bears as a species.
47. Concentrated sources of food determine the movements of bears within their range. Individual bears' ranges will overlap at the concentrated food sources so that many bears, each of which ranges over a wide area, will visit the same concentrated food source in the fall. Radio telemetry studies in Massachusetts have shown that bears will travel 30 to 40 miles to a productive beech stand.

48. Other areas in the vicinity of Parker's Gore East, including Jockey Hill, the **Balch** Estate and Bald Mountain, contain some beech stands but do not have as high a concentration of scarred beech trees as observed in Parker's Gore East.
49. The historic scarring of the beech trees in Parker's Gore East indicates the bears' fidelity to the reliable nut producing trees. Such fidelity means that if this source of food were destroyed, they may not readily shift to other sources of beechnuts. The loss of the significant hard mast supply in Parker's Gore East resulting from the logging operation would cause the bears that use the area to expend considerably more energy searching for and obtaining an equivalent amount of food, with a loss in the bears' energy reserves. Destruction of the mast-producing component of this beech stand could therefore imperil the ability of the bear habitat to support a bear population.
50. Since bears usually avoid human activity, logging in Parker's Gore East in the fall will interfere with the bears' use of the mast-producing beech trees in Parker's Gore East at the most critical feeding time for the bears. Logging in that area in the fall could also prevent the bears from denning in the area. Bears usually go to their dens in mid-November to early December.
51. In order to evaluate the total impact of the logging operation on the bear habitat in Parker's Gore East, specific plans for the logging operation would have to be evaluated, including the timing of the operation, the size and shape of the clear cuts, the location of the cuts, and identification of the trees that will be retained.
52. The proposal for the logging operation, which involves leaving an average of four to five beech trees above 15 inches in diameter per acre, could have a devastating effect upon the most concentrated beech stands. On those acres that contain seven to ten larger trees, leaving just four trees would mean 40 to 60 percent loss of large beech trees in some areas.
53. Removing trees close to productive beech trees causes the residual stand to be more vulnerable to uprooting and loss of branches in a windstorm.

54. The beech stands and softwood cover in Parker's Gore East constitute necessary wildlife habitat that will be destroyed or significantly imperiled by the Applicants' proposed logging operation.

E. Wetlands

55. When bears first emerge from their dens in early spring, they are weak and cannot travel far to find food. They initially seek wetland areas because the saturated soils in wetland areas facilitate early growth of vegetation. In Vermont, wetland areas are the main sources of food for black bears during this critical period when the bears are very weak and vulnerable.
56. The bear's ability to adequately nurse cubs she gave birth to during the winter partly depends upon the availability of food sources in the spring. A lack of spring food affects the quality and quantity of milk available to the cubs. Insufficient quality or quantity of milk results in lower nutrition and subsequently slower cub growth and greater potential for mortality.
57. Yearling cubs are one to two years old. Because yearlings cannot store fat reserves as large as adult bears', spring food sources are even more critical to the yearling. Without spring food sources, the potential for mortality in the yearling is significantly increased.
58. Bears will locate a wetland area and stay there for a week or more and then move to another wetland area. This allows for the use of the same wetland area by other bears as they move through their ranges. The existence of a number of wetland areas within the range is important because bears are generally socially intolerant of each other and dislike sharing a feeding area.
59. The dominant plants in the wetland at the proposed pond site are tall grasses, sedges, and herbs, including 37 species of vascular plants. These represent a significant concentration of a variety of herbaceous foods.
60. The wetland at the pond site is ideal for bear use in the spring. **It has a good variety of vegetation and it is located in a remote area of good cover.** Given the

paucity of quality wetlands in the northern half of the subunit, this wetland is particularly critical to female bears whose annual ranges encompass the area.

61. Parker's Gore East contains some seeps and small brooks with riparian growth. These areas produce less desirable forms of spring vegetation and the plants are less diverse and often produce growth later in the spring because they are sheltered by the trees that grow along the streams. There are no other wetlands in Parker's Gore East and not many in the entire subunit.
62. Construction of the pond will destroy the wetland.
63. In the spring of 1988, 23 bear scats in the area of the pond site were observed.
64. The concentrated stand of beech trees is located approximately one-half mile from the proposed pond site. Construction and operation activities at the pond site are likely to influence the bears' use of the beech stand. Although the pond site is not far from the Sunrise Condominiums, the area is still considered remote because the topography, cover, and lack of human intrusion isolate it from the development. Moreover, the pond is adjacent to the large remote area of Parker's Gore East which provides habitat for the bears to escape to. The construction and operation of the proposed pond would significantly decrease the availability and use of the concentrated beech stand because of the noise and disruption during construction as well as on-going intrusion by humans after it is built.
65. Killington has not proposed to control or prohibit public access to the pond. The pond is intended to be managed as a public trout pond.
66. The loss of the wetland will decrease the available spring food supplies for the bears whose range includes Parker's Gore East.
67. Bears do not readily tolerate human presence and activity. The presence of the pond will result in the presence of people in the area on a permanent basis. This will cause the loss of the remoteness that is critical to use of an area by bears.
68. Construction and operation of the pond would destroy or significantly imperil necessary wildlife habitat by destroying the wetland, rendering the beech stand

useless, and eliminating the remoteness of Parker's Gore East. The significant reduction in food supplies would result in the significant reduction or elimination of the habitat available to the bears that use it.

IV. CONCLUSIONS OF LAW

1. Admissibility of testimony on wetlands as necessary bear habitat

Killington contends that the Board should exclude the testimony of Kenneth Elowe and Jerry Jenkins on the subject of wetlands as bear habitat because a) the issue of wetlands as habitat was not raised before the District Commission, b) Killington did not include this issue in its notice of appeal, and c) no other parties cross-appealed on this issue. Since Rule 40(C) provides that the scope of the appeal is limited to the issues raised by the Appellant "unless substantial inequity or injustice would result from such limitation," Killington claims that the subject of wetlands is not properly before the Board.

The Board believes that the issue of wetlands as bear habitat is a proper consideration in this appeal. The subject of this appeal, as identified by Killington in its notice of appeal, is the existence of necessary bear habitat in Parker's Gore East and the effect of the proposed pond and logging operation upon necessary bear habitat in Parker's Gore East. Since the pond site, located in Parker's Gore East, constitutes a wetland that allegedly is necessary bear habitat, testimony on the wetland as bear habitat and its value to bears is clearly relevant to the issues raised by Killington in its appeal. Since Killington raised the subject of the existence of bear habitat in Parker's Gore East, there was no need for other parties to cross-appeal in order for the Board to specifically address wetlands as habitat.

2. Admissibility of testimony of certain expert witnesses

Killington requests the Board to disregard testimony of the opponents' experts that was phrased in the language of the statute because, it argues, the Vermont Supreme Court has held that opinions on the "ultimate issue," or legal conclusions, have no probative value, citing Riess v. A.O. Smith Corp., No. 87-012, Slip Op. (Nov. 10, 1988). Killington argues that since most of the experts' testimony consisted of opinions that lacked a scientific foundation, acceptance of their opinions would be improper.

In Riess, the Court held that, in a negligence case, it was error to allow an expert's opinion on the ultimate issue when there was almost no other evidence to support the expert's conclusion. The Board agrees that if the opponents' experts had offered no data to support their opinions that Parker's Gore East contains necessary wildlife habitat and that the pond and the logging will destroy or significantly imperil the necessary bear habitat, the Board would not consider their opinions in reaching its decision. The record in these cases, however, contains abundant testimony from the opponents' experts on the underlying facts and data to support their conclusions. Since the Board issues findings of fact to support its decision, the decision must be based upon the facts in the record and not upon unsubstantiated opinions of any expert witnesses. The Board thus will not exclude the testimony of the opponents' expert witnesses but will rely upon the testimony of many expert witnesses in reaching its decision.

3. Admissibility of the State's witnesses

Killington also seeks to exclude the State's evidence on the issue of necessary wildlife habitat. Because the State has previously asserted that the proposed pond alone would have no undue adverse impact upon any necessary wildlife, Killington argues, the State is bound by that position and may not now provide testimony to the contrary.

Appeals to the Board from decisions of district commissions are heard de novo. 10 V.S.A. § 6089(a). A de novo hearing means that the case is heard as if nothing had happened before. In re Poole, 136 Vt. 242 (1978). Therefore, any position taken by the State prior to these proceedings is not relevant in this appeal. Furthermore, all testimony was prefiled so that Killington had notice of the evidence the State intended to present and was given ample opportunity, over the course of a year of hearings, to respond to the evidence. The Board believes, therefore, that since Killington suffered no prejudice in these proceedings from the State's change of position, the testimony is admissible. The Board acknowledges that information on bears is constantly changing and the State may have to change its opinions based upon acquisition of new knowledge. The Board also notes that such changing information poses difficulties for anyone attempting to design a development in an area that contains bear habitat. Regardless of these concerns, the Board's role is to consider the facts before it and make its decision based upon that evidence. It will therefore consider all relevant evidence submitted into the record in these proceedings.

4. Definition of Necessary Wildlife Habitat

10 V.S.A. § 6086(a) (8) (A) (Criterion 8(A)) provides that "[a] permit will not be granted if it is demonstrated by any party opposing the applicant that a development or subdivision will destroy or significantly imperil necessary wildlife habitat." "Necessary wildlife habitat" is defined at 10 V.S.A. § 6001(12) as "concentrated habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life including breeding and migrating periods."

Killington argues that "habitat" must be defined as a relatively small area where a species meets all its needs and which is essential to the continued survival of the species. Since the range of black bears can encompass more than 50 square miles, Killington contends, bear habitat is not concentrated and the statute does not apply to bears.

The Board cannot accept Killington's arguments, for several reasons. First, the language of the definition of "necessary wildlife habitat" specifically indicates that the habitat need not meet all of the needs of a species but must be decisive to its survival "at any period in its life including breeding and migratory periods." Nothing in this language suggests that one part of a range that provides an important source of food or cover is not necessary to the bears that use it just because during the course of a year they will go to other places. Second, if the Board were to accept Killington's interpretation, very little wildlife habitat would be protected by Act 250. Even deeryards would not be included since a **deeryard** is defined as an area where deer spend the winter months. See Re: Southview Associates, Findings of Fact and Conclusions of Law and Order at 3 (June 30, 1987). To apply this section of Act 250 only to animals that meet all of their survival needs within a "relatively small area," as Killington suggests, would render the section practically meaningless. If the Legislature intended to exclude certain wildlife habitat from Criterion 8(A) review, it easily could have done so explicitly. Since it did not exclude specific habitat, the Board cannot agree with Killington that the Legislature intended that no bear habitat should be protected anywhere in the State.

Killington also argues that the Board's previous interpretation of "necessary wildlife habitat," as habitat critical to the survival of the particular wildlife

population dependent upon it, is incorrect. Killington believes that only habitat that is used by the last surviving animals of a particular species can be considered "necessary wildlife habitat."

The Board considered similar arguments in Re: White Sands Realty Company, Land Use Permit #3W0630-1-EB (February 25, 1982) and Re: Southview Associates, Findings of Fact and Conclusions of Law and Order (June 30, 1987). In Southview, this Board stated: "The statute would be rendered meaningless if it were interpreted to mean that only the last **deeryard** in the state would be subject to review under Criterion 8(A) so that the state deer herd would have to be on the verge of extinction before Criterion 8(A) would apply." Id. at 8. The Board does not believe that only endangered species are afforded consideration under Criterion 8 (A), especially since "endangered species" are an entity identified for protection distinct from "necessary wildlife habitat" in the language of Criterion 8(A). The Board concludes, therefore, that it may consider bear habitat as potential "necessary wildlife habitat" pursuant to Criterion 8 (A).

5. Parker's Gore East as necessary wildlife habitat

The Board concludes that Parker's Gore East constitutes necessary wildlife habitat. The area is clearly bear habitat: Substantial evidence established that the area is heavily used by bears. The wetland at the pond site is an important source of spring food. The beech stands in Area 1 provide an extraordinary fall mast supply. The undisturbed remoteness, excellent cover, and diverse food sources of the entire area provide a high quality habitat for bears.

Furthermore, the Board is persuaded that the bear habitat is "necessary" wildlife habitat.

The wetland that would be flooded to create the pond is the only large, open wetland in Parker's Gore East. Although Parker's Gore East contains a number of seeps and smaller wet areas, the wetland at the pond site provides a more concentrated source of food supply which bears need when they first emerge, weak, from their dens in the spring. The loss of this wetland would force the bears to expend more energy to find the food they must have to build up their energy after depleting their fat supplies during the winter. Bears are clearly using the wetland, as evidenced by the 23 bear scats found in close proximity to the pond site. Based upon the abundant evidence that bears of all ages are dependent upon wetlands for their spring food **supply**, and the lack of any comparable wetlands in Parker's Gore East, the Board concludes that the wetland at the pond site is necessary wildlife habitat.

Similarly, substantial evidence indicates that the beech stands in cutting Area 1 are an important food source for the bears in the area. Although not all beech trees produce nuts every year, a large number of the trees in Area 1 show abundant signs of current and historic bear use. This high concentration of nut-producing beech trees is rare in the Green Mountains. The intense level of current and historic scarring of the beech trees indicates that the bears have depended upon this food source for decades.

Vermont black bears are particularly dependent upon beechnuts because they are a highly nutritious food that supplies the fat they need for their survival through the winter months. Without adequate fall mast, female bears do not reproduce at all or they produce weak cubs that may not survive. Lack of adequate fall mast in a remote area like Parker's Gore East means that the bears must move to inferior habitat to find sufficient nutrition. If the bears lose this fall food supply they will be forced to move to areas with poorer food source and greater contact with human development and activity. The survival of the bears that use the Parker's Gore East habitat will be in jeopardy because of the higher mortality and lower reproduction rates that would result if the bears were forced to seek other sources of food, cover, and isolation from human activity.

Areas 2 and 3 also constitute necessary wildlife habitat for black bears. The dense softwood cover in the upper elevations affords concealment and escape routes for bears. This remote cover is critical, because without it the bears could not travel and gain access to the various sources of food that exist within their range, including the extraordinary concentration of highly productive beech trees identified in Parker's Gore East. The upper elevation cover is particularly critical for bears because it provides large areas untouched by human development which are critical to the bears' survival.

The Board therefore concludes that Parker's Gore East constitutes "necessary wildlife habitat" as defined in 10 V.S.A. § 6001(12).

6. Effect of the pond upon the necessary wildlife habitat

The Board concludes that the construction and operation of the pond will destroy or significantly imperil necessary wildlife habitat in several respects. One, the construction of the pond as proposed will destroy the existing wetland which is a critical food source for bears in the spring. Two, the intrusion of human activities associated with the pond construction will likely cause the bears not to use the

highly productive concentrated beech stands located approximately one-half mile from the pond site. Finally, the current proposal for the pond includes allowing public use of the pond. Again, the intrusion of humans into the remote area is likely to cause the bears to abandon the area which includes the beech stand, an important food source. The Board must therefore conclude that both the construction and the operation of the pond will destroy or significantly imperil necessary bear habitat.

7. Effect of the tree harvesting upon necessary wildlife habitat

The Board concludes that the tree harvesting proposal will also destroy or significantly imperil necessary wildlife habitat in Parker's Gore East. It is clear that both the concentrated beech stand and the softwood cover are critical to the continued survival of the bears that use this habitat, so that protection of this habitat is essential. As proposed, Mr. Smith's logging operation could remove up to 60 percent of the beech trees in the 15-inch and larger diameter class. These larger beech trees are the best producers of beechnuts and the most heavily used by the bears. Without knowing whether the mast-producing beech trees in Area 1 are going to be retained, the location of the logging roads to be constructed, or the areas that will be clearcut, the Board must find that the habitat will at least be significantly imperiled, if not destroyed. Furthermore, the logging operation will be conducted throughout the fall during the time that the bears are feeding on the beechnuts in Area 1 and going into their winter dens. The bears will likely avoid the area if logging activities are taking place there, thereby losing an important source of fall food at least during the two years of the logging operation.

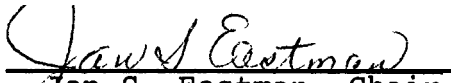
The Board notes that its conclusion that Parker's Gore East contains necessary wildlife habitat that will be destroyed or significantly imperiled by the logging and the construction and/or maintenance of the pond does not mean that permits will be denied for these activities. Criterion 8(A) requires that the Board now address the three subcriteria,

V. ORDER

1. The testimony on wetlands as necessary wildlife habitat was properly admitted into the record.
2. The testimony of the expert witnesses will not be excluded by the Board.
3. The construction and operation of the proposed snowmaking pond will destroy or significantly imperil necessary wildlife habitat.
4. The harvesting of trees in Parker's Gore East above the elevation of 2,500 feet will destroy or imperil necessary wildlife habitat.
5. The hearings in these matters will be reconvened.

Dated at Montpelier, Vermont this 11th day of May, 1989.

ENVIRONMENTAL BOARD


Jan S. Eastman, Chair
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